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Correspondence from practical farmers, giving the results of their experience, is solicited. Letters should be signed with the writer's real name, in full, which will be printed or not, as the writer may wish. The PLOUGHMAN offers great advantages to advertisers. Its circulation is large and among the most active and intelligent portions of the community. Entered as second-class mail matter.

Agricultural.

Cross Pollination of Orchard Fruits.

Although the theory of the importance of having some of our orchard fruit crossed in the blossom from the blossoms of other varieties of the same species, to obtain better crops or better fruits, was not propounded very long ago, it has attracted much attention, and has been generally adopted by the leading horticulturists, because it gives a reasonable explanation of many problems that have been more or less difficult of explanation before.

When a man planted a commercial orchard of one variety that he thought to be productive and in good demand in the market, he could not understand why his trees should not yield as well as those of his neighbor, who had the same kind in a little orchard of a half-dozen varieties, intended more for home use than for market. When a tree bore a good crop on one side and set no fruit from an equally good bloom on the other, it was not easy to assign a reason for it, and when two seasons from the same tree were set upon similar stocks of bearing trees in different orchards, and varied much in quality or amount of fruit, it seemed unaccountable as it did when an old orchard had all but one or two favorite ones cut down or dug out, that the trees left should cease to be productive.

But when this question of cross pollination began to attract attention about ten years ago it furnished a probable solution of all these puzzling questions. The absence of other varieties near the trees that failed or fruit explained those cases, while if the pollen was distributed by a strong wind there would be a reason why it should take effect upon the windward side of the tree and fail to reach the leeward or the center. If bees or insects distributed they would be more impartial, or a change of wind might bring pollen from another tree to the other side.

We do not remember which was the first to publicly publish literature upon this subject. Professor Bailey of Cornell Experiment station, New York, who devoted his study of it mostly to plums, or M. B. Waite of the Agricultural Department at Washington, who studied pears more, and apples to some extent, but we think the theory had been advanced by a few of the leading horticulturists before either of them published anything on the matter, and with them it was rather a theory than a proven fact.

Since that time many have devoted themselves to studying these conditions, not only in regard to plums, pears and apples, but to many other of our orchard fruits, and they have prepared lists of such varieties as are adapted for cross pollination or fertilization of blossoms, and much other information upon the subject that is likely to prove valuable to those who have planted orchards, or intend to do so. The list is too long, and yet not sufficiently complete for publication in a newspaper article at this time, but one or two general rules may serve as a guide. It is of the first importance that the varieties selected for cross pollination should be in bloom at the same time. This is most especially necessary in those which have their blossoms but a short time, as plums, and with the apples there may be a variation of a few days, as the blossoms remain much longer.

It is also beginning to be realized that if not all, are better pollinated by bees that are closely related, as one by another that is a seedling of it, and that, as a matter of fact, the characteristics of the fruit are retained in their entirety, the stock does not vary in character from the graft, and a tree selected to furnish pollen for the blossoms of another should not vary much in general character from the other.

Naturally, from this it follows that the character of the fruit may be modified by pollen of the tree that stands near it, as well as by the stock the scion is set in. It may be made earlier or later, a better or a poorer, larger or smaller, more or less sour, depending on the character of the fruit pollen that is used to have one who could and did point out to us some of the faults of such practices, who insisted upon the milk for the calves being blood warm, though he tested it by his finger and not by the thermometer, for he had none, and who added good corn-meal porridge to it to supply the place of the cream that had been taken from it. He knew, too, the value of a warm place for them at night, and though he was better fitted to make a comfortable bed than to put in the manger or the feeding racks.

Today the calf fed upon skim milk, at an established temperature proven by the thermometer, or that warm from the separator,

blossoms, those of one plant being all pistillate or feminine, fruit-bearing blossoms, and the other all staminate blossoms furnishing pollen to fructify the others. In fact, this condition is very rare in strawberries, there being few entirely barren when grown alone, though practically so far as profitable production goes.

In the plums more than in any other of our orchard trees have been found defective blossoms. In some the pistil which should form the fruit is entirely lacking. These will be always barren, at least if all the blossoms are so. In some the stamens and pistils do not develop at the same time, or the pistils are longer than the stamens, so that the pollen from that blossom cannot reach it. These can only become impregnated by the pollen from other flowers.

While in some cases, as we said before, the wind conveys the pollen from one tree to another, this is but an uncertain method, as it "bloweth where it listeth," and neither time nor direction can be depended upon. Bees are more reliable, but when there are many trees of one variety in a solid block, they may for some reason limit themselves to that variety alone, and thus carry it to any pollen from another variety, though it is but a little distance away. This is probably also true of other insects. The pollen of apples, pears and plums is sticky and does not move much with the wind, yet with apples and pears the pollen is so abundant that three or four rows of one kind may usually be safely planted, especially if bees are kept near them. Some would say two or three rows of plums, but we should feel more sure of fertility if each row was of a different variety from that next to it.

The nearer the fruit comes to a natural state, or as seedling, the greater the chance of its being self-fertilizing, or having a perfect flower, and thus trees standing alone, that have not been grafted, often bear heavily. If it is desired to graft such a tree a few of the top branches should be left untouched that they may furnish pollen for the blossoms on the graft.

We used to know as a boy wild grape vines that blossomed full, and were very fragrant every year, yet never bore a grape. They were known as "he" vines, but we were not able to tell them whether the blossoms were strictly staminate or not, and we were more interested in locating the vines that bore good grapes than in those that had none. Cross pollination between two different species, as the pear and apple, may occur, but we have no authentic proof of such cases.

Dairy Notes.

Mr. Van Alstyne says of the six months dairy test at Buffalo, or the Pan-American Exposition that it was a source of perplexity to those who handled the milk that they could not get a better flavored butter, when milk was strictly clean, handled in the most approved manner, and with the best culture for a starter. They seldom had it score over forty-two points on flavor, and often had it of positively bad flavor. After testing the milk of each cow in a jar by itself they decided that the milk of some of the cows had a bad flavor, due to indigestion, and that this was caused by the food ration of six pounds of ensilage, six pounds of hay and ten or twelve pounds of grain being too much for the ordinary one thousand pound cow, especially when she was kept without exercise. During a short time that the Jerseys were allowed to run in the yard used for judging sheep, for an hour or two each night, their butter scored the highest during the test, and the highest in barn.

Farmers are beginning to realize that a "skim milk calf" need not necessarily be an inferior production, though we can remember when it was used as an expression of contempt, very much as was the term "bog-hay steers and cows." The latter were certainly pretty poor property, as we remember some of them, because the bog hay and perhaps a little handful of "top stalks" cut from the corn before the ears had ripened, and when it had little nutrition in it, was all that the steers, heifers and dry cows were expected to live upon in winter. The skim milk calves were also rather poor specimens. An idea that the skim milk was not so good as new milk led to giving a great deal of it if it was plenty, as it usually was when not more than one calf out of four was cow until the butter would take them, and the one raised being selected for the reason that veal was so low that it would not pay to fatten it. The skim milk was sometimes given so warm as to scald the calf's nose, and sometimes so cold as to chill it like a drink of ice water. Sometimes sweet and sometimes sour. The excessive quantity usually resulted in a pot-bellied animal that after the milk was taken from it never had enough to fill its capacious paunch, excepting when it was at pasture, and not even then in a dry season. Any old shed was thought good enough to shelter it by night, and too good for it to stay in by day, for it must be toughened to endure our New England climate, or it must die. We are not speaking of all that we knew a half century ago, but of many and perhaps a majority of them. We were fortunate enough even then to have one who could and did point out to us some of the faults of such practices, who insisted upon the milk for the calves being blood warm, though he tested it by his finger and not by the thermometer, for he had none, and who added good corn-meal porridge to it to supply the place of the cream that had been taken from it. He knew, too, the value of a warm place for them at night, and though he was better fitted to make a comfortable bed than to put in the manger or the feeding racks.

Today the calf fed upon skim milk, at an established temperature proven by the thermometer, or that warm from the separator,

and in either case strengthened by adding a little flaxseed jelly, is as well nourished as one that suckles the cow. It does not need to suffer from indigestion or scours because of improper feeding. It is most frequently selected as being the offspring of the best cow, and from a sire of good blood, without regard to the value the butcher might place upon it, and it is well cared for in winter and in summer. Thus it is larger and more mature at two years old than they used to be at three years old.

The "bog hay steers and cows" are less common, as many of the bogs have been drained, but where the bog hay is still fed, corn meal, wheat bran, cottonseed or gluten

ket rates for his products, and the consumer would not pay for what he does not get.

In sorting apples over in winter to grade for the best market, the holder always expects to lose a certain amount through shrinkage and decay. I have sorted over prime apples so that two barrels made one good barrelful in January, and the extra price received hardly made up for half the loss. It is true that the condemned fruit taken from this lot had some value, but not a commercial value. It was largely one of home use. Very few of us raise many apples which could be graded as fancy and extra in any critical market. To us the fruit seems very fine, but when we compare it

per bushel, beef eight to ten cents and pork seven to eight cents a pound, dressed weight, all good prices for the producer, but a little steep for the consumer. However, as wages are good and but few idle men, general prosperity seems to prevail throughout this country, and I may safely say throughout the State. Three cheers for Maine!

Granite Hill Farm, Hallowell, Me.

Points on Sugar Making.

During the past four years the Vermont Experiment Station has conducted a series of experiments dealing with the flow and composition of sap in the sugar maple. In spite of the poor seasons a large amount of data has been secured bearing on many points of practical as well as scientific interest.

Among the findings are some that throw light on the question, which side of a tree gives the most sap?

In the season of 1901 four trees were selected for this work and tapped at the usual height on the north, south, east and west sides. The trees represented as nearly as possible all conditions of exposure. The results expressed in pounds of sugar obtained may be seen from the following table:

	North.	South.	East.	West.
Tree 1.....	0.95	0.75	1.05	1.00
Tree 2.....	0.44	1.46	0.80	0.92
Tree 3.....	0.87	1.05	1.25	0.87
Tree 4.....	2.39	3.34	3.27	2.36
Average.....	1.31	1.65	1.59	1.31

It is thus seen that the difference in favor of south and east sides of a tree is quite pronounced, amounting to three-tenths of a pound. Similar trials comparing north and south tapping made in 1899 and 1900 also give results that favor the south side.

On typical sap days it seems unquestionably true that a south exposure will yield the most sap. On a cloudy day, when all sides of a tree warm up equally fast, it is more nearly an even thing.

A review of the figures also calls attention to a remarkable difference between trees. No. 4, from which the greatest yield of the richest sap was obtained, was a large, vigorous tree standing in the open. As is well known such trees give large amounts of rich sap. This is due to the increased leaf area and full exposure to sunlight. The green leaves in sunlight during the summer season make starch from materials gathered from air and soil. This starch is stored throughout the tree and is the source of sugar in the spring. Sunlight, exposure and leaf area are therefore important factors in maple sugar production.

The percentage of sugar in sap from different sides of the same tree is found to vary but slightly.

Notes from Washington, D. C.

Fruit is one of the very important agricultural products of this country, yet little is known of its true food value. The Department of Agriculture has been making some very interesting investigations of the effect of different diets upon human beings, considering especially fruit, and is about to issue a bulletin on the subject.

Most of the studies already reported by the department have been made with persons consuming a mixed animal and vegetable diet. It seemed desirable to secure results with persons living on a diet in which vegetable foods formed the principal or sole source of nutrients. These studies were accordingly made with members of a fruitarian colony, who claimed to live almost exclusively on a diet of raw fruits and nuts, and with the Chinese, who are commonly said to live very largely upon rice.

It was found that the Chinese residents in California do not, as is often supposed, live almost entirely upon a vegetable diet. They approach no nearer to such a diet than does the average American, who has no thought of doing without animal food. The diet varied and the dietaries were well balanced, approaching quite closely to the commonly accepted dietary standards. Many of the foods eaten were unfamiliar to most Americans, but, nevertheless, cannot be regarded as other than wholesome and nutritious.

The Chinese dietary is commonly believed to be very inexpensive and limited in amount. As shown by these studies, it is quite cheap, but was neither scanty nor inferior.

Rice on an average constituted between one-half and one-third of the total food consumed, and held much the same relation to the total food of the Chinese, as do bread and other cereals, starches, etc., to the total food of the ordinary American family.

President Roosevelt's views on the preservation of game and fish, as expressed in his message, are assuming concrete form. Judge Lacey of Iowa introduced a bill in the House of Representatives last week, carrying out the President's ideas regarding the protection of animals, birds and fish in the forest reserves, and transferring control of the forests to the Department of Agriculture. The bill also authorizes the President to establish fish and game preserves on these forest lands when so requested by the governor of a State in which the reserve is located.

The House committee on commerce favorably reported the bill to prevent the false branding or marking of food and dairy products. The report describes the extent to which misbranding is practiced and refers to the failure of our laws to provide punishment for dishonest and unscrupulous parties. Cheese and maple syrup are given as examples of articles often subject to misbranding. The bill provides heavy penalties for guilty parties. It is expected the bill will pass the Senate and become a law, — a short step in the direction of a pure-food act.

The statistician of the Department of Agriculture is preparing a report showing the

changes in the railroad freight rates during the past fifty years. The report deals not only with the charges for the transportation of agricultural products to the principal markets and seaports, but also with those for furniture, agricultural implements, dry goods, boots and shoes, and other commodities used by the farmer, from New York to Chicago, St. Louis and other important distributing points in the Western States and on the Pacific Coast.

The figures presented by the bulletin show a steady cheapening of the freight rates. In 1857 it cost the farmer on an average throughout the country 1.92 cents, or nearly two cents per mile, to ship a ton of produce. In 1900 it cost him .72, or less than three-quarters of a cent a ton a mile. Of course this is an average and includes long through hauls.

The figures of the last three years show a great increase in the value of freight shipped. In 1898 the average number of tons carried one mile per mile of road operated by all railroads was 325,832. The ton-miles per mile of line for 1900 is reported as 735,366, an increase in the density of freight traffic of over forty per cent, in four years. The great industrial activity of the last two years has been enabled, through the adoption of cars of larger tonnage capacity and the employment of heavier locomotives, to produce this result.

The Department of Agriculture has in press a brief bulletin on Johnson grass, by C. R. Ball, an assistant agronomist, which states some very interesting history concerning this grass, and shows how a plant may spread over the country. Johnson grass was introduced from Turkey into Alabama and South Carolina sixty years ago. It spread west until now it is found along the irrigating ditches of Arizona and California, and the coast region of Oregon and Washington. It is described as of great value as a hay and forage plant, but is also a pest, as it is difficult to eradicate. The bulletin deals specifically with this feature of possible control, and shows that as its almost only means of propagation is through seeds, the spreading of the grass could be checked if the seeds were not allowed to ripen. Mowing, cattle grazing and other means are suggested to keep this grass down. When it is grown for hay it should be cut before it is full seed. This improves the quality of the hay also. Texas has a law making it a misdemeanor to scatter the seed of this grass or Russian thistle, or to sell any out of other seed containing it. The bulletin states that the firm belief which is ingrained in many farmers that Johnson grass cannot be controlled or eradicated is unwarranted, and discusses the various methods, — cultivation, winter fallow, summer fallow, cultivation in crops, use of chemicals and patent methods. The bulletin is an interesting and instructive one.

A large amount of testimony has been taken by the ways and means committee of the House on the question of beet sugar vs. cane sugar, in connection with the proposition to reduce the Cuban sugar tariff. The Department of Agriculture has stood squarely for the beet-sugar industry. Prof. Harvey W. Wiley, the chemist of the department, who is also the sugar expert of the Treasury Department, and of whom Secretary Wilson spoke to me as the greatest sugar expert in the United States, appeared before the committee the other day and expressed the opinion that free sugar from Cuba would end in the complete destruction of both the beet and the cane industries in this country. "It seems perfectly certain," he said, "that if Cuban sugar be given free entry into our ports, not another dollar will go from the banks to sugar factories, not a dollar to the farmer, to encourage him to plant and cultivate the crop, and not a new boiler or mill will go into the sugar houses in Louisiana. Some feeble attempts will be made to save the remnants of the wreck, but these efforts will not be the telling work of young giants, but the feeble and aimless endeavors of the paralytic."

The census reports show consolidation of wool manufacturing as well as other industries. The preliminary figures show 1414 wool manufacturing establishments in the United States, a decrease in number of seventeen per cent, since 1890, but with a total capitalization of \$310,170,000, which is an increase in the ten years of twenty-six per cent. The average number of wage earners connected with these factories is 139,000, drawing \$57,933,000 in wages annually.

GUY E. MITCHELL.

Notes from the South Shore.

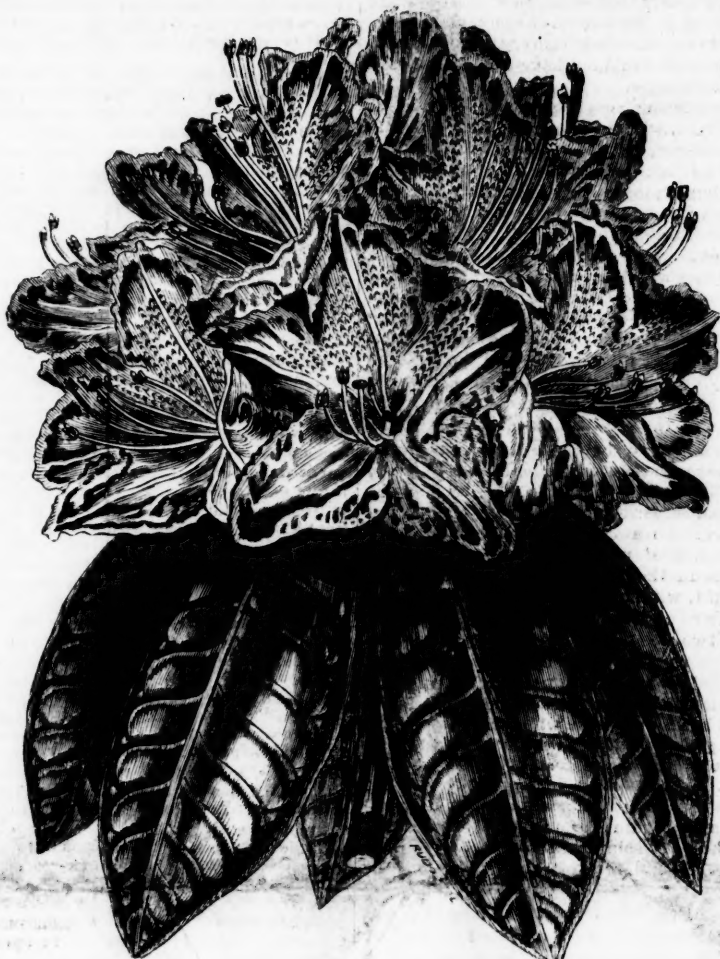
We have had an open winter thus far in this section of Massachusetts. We had about ten days of good sleighing and sledging, which the farmers and mill owners improved by hauling their logs and wood.

The box manufacturers are offering for logs \$1 per thousand feet more than last year. The ice dealers have had a good harvest, and have filled their houses with good, clear ice from eight to eleven inches in thickness. In the matter of hay the farmers are well off, the crop was large and of fine quality.

Apples were a very light crop and are selling at sixty cents a peck. There was a fair crop of cranberries, but the price is quite low. Potatoes, light yield and inferior quality, selling at \$1 per bushel. Squash almost a total failure. Cabbages and turnips good. Farmers are getting out their year's stock of wood, attending the Institute and getting ready for spring work, hoping their labors will be crowned with success.

H. A. TURNER.

Norwell, Mass.
W. Irving Griffing of Glens Falls, N. Y., writes that he has sold the pacing mare Dearest (2:22), by Mambrino King, to Hon. W. G. Bennett, Weston, W. Va.



RHODODENDRON.

meal help to make the ration nutritious, and the animals do not come out of the barn to the pasture "spring poor," nor have to be lifted up by the tail in the morning in the barn. It may seem to some of our younger readers that this last expression is an exaggeration, but we knew a man much less than fifty years ago, who said he needed a good hired man to help him in the winter, because he was not strong enough himself to "tail up" the cows in the morning. The hired man also usually had to skin two or three every winter and throw the carcasses into the hogpen. And the owner was a rich man so far as lands and railroad stocks went, but a poor man so far as having the comforts of life would count.

Foreign Fruit in America.

There were sold in the United States and Canada during 1901 approximately 1,500,000 bunches of bananas and 15,000,000 cocoanuts, in addition to other tropical fruits, says the Fruit Trade Journal. Sixty ocean-going steamers were engaged exclusively in the banana trade. Estimating one hundred good bananas to a bunch, these figures show an average consumption of more than twenty bananas each for every man, woman and child in the United States.

Consul General Guenther of Frankfurt, Germany, in a recent report says: "The consumption of foreign fruits in Germany is increasing from year to year. According to official statistics, the importation of apples in 1899 amounted to over \$10,000,000; pears, about \$2,500,000; cherries, \$430,000; plums and stone fruits, \$2,800,000, and berries and other fruits over \$500,000, making a total of \$16,430,000."

The largest shipments of fresh fruits come from Austria-Hungary, Holland, Belgium, France, Italy and America. The report of the Municipal Market of Berlin for 1900 shows that, under the most favorable conditions, it will be possible to prevent a part of these importations only by an improvement in German fruit culture.

Marketing Winter Apples.

The question of disposing of our apples to the best advantage is intimately wrapped up into the question of proper grading and sorting. There are today altogether too many assortments made in the market, and as a result they are confusing. We have, for instance, No. 1 apples, prime, fancy and extra fancy. When a grower sees his apples marked for either one of these grades, he is naturally led to think that he is entitled to the highest market prices, while in reality he may be quite low down on the list. There should be one leading grade, and this should pass as fancy, and to be admitted to this apples should all approach a uniform standard. Consumers make far less distinction between these various grades than the marketman, and there is consequently often a loss somewhere between the dealer and the consumer. That is, the marketman buys prime or No. 1 apples, and sells them at fancy or extra fancy prices. If there was systematic grading like wheat or corn the grower would receive the full mar-

ket rate for his products, and the consumer would not pay for what he does not get. In sorting apples over in winter to grade for the best market, the holder always expects to lose a certain amount through shrinkage and decay. I have sorted over prime apples so that two barrels made one good barrelful in January, and the extra price received hardly made up for half the loss. It is true that the condemned fruit taken from this lot had some value, but not a commercial value. It was largely one of home use. Very few of us raise many apples which could be graded as fancy and extra in any critical market. To us the fruit seems very fine, but when we compare it

Maine Farm Notes.

We have had here in Kennebec County a very peculiar winter so far. It was ushered in by a big drifting snow storm, followed soon after by a very heavy fall of rain, causing unusual rise of water and damage for the season. Since then the roads and fields have been bare for the greater part of the time, as every snow fall would be quickly succeeded by rain, carrying it off so that wheels have been in evidence more than runners; in fact, I may safely say we have had but two weeks out of two months of really good sleighing, something extremely unusual for this section.

In consequence a great deal of wood hauling and lumbering has been delayed, and those who have much to do in that business will have to hustle when snow enough arrives and stays. It commenced snowing Feb. 1, and as some eight inches have already fallen on a level there is a good prospect of our hopes being realized if rain does not follow.

Those who did not cut and haul their ice early when there was a little snow have had the pleasure of drawing it home on wheels. The ice was twenty inches thick, but there was no snow to scrape off, and as the wheeling was excellent we drew it home on a jigger almost as cheaply as on runners. Grain feed for stock is high in price, but there is an abundance of good hay, and with the silo and its ensilage to help out cows are doing well, and no one is worrying in this neighborhood.

There was a very good crop of apples in this immediate vicinity, and prices ruled from \$2.75 to \$3.50 per barrel right through, ones and twos. We may not see the like of it again for several years, if we ever do, but those who make orcharding a study, and give their orchards the same careful attention as is given to other crops, will sooner or later have their reward.

Good cows are worth \$40 to \$45, and fancy, fresh in milk, \$50 to \$55. Good hay is \$12 per ton, potatoes seventy-five to eighty cents

Agricultural.

Bees and Honey.

One of our exchanges cautions the farmers against entering the rank of beekeepers, because if they start with but one or two hives and have fair success a careful examination would show that the time spent in watching for the swarming, the feeding in spring and fall, and the other trouble is not much more than fairly paid for by the forty or fifty pounds of honey for which the grocer might pay him eight or ten cents a pound. Yet he may be not encouraged by it as to increase the number of his colonies, perhaps to thirty or forty, and then his trouble begins in earnest. He may find that others have also thought there would be a profit in keeping bees, and the section will be so overstocked with them that he fails to get much more honey from the several colonies than he did from the one.

We give the whole amount of this statement because we wish to state the case fairly, but we do not at all agree with the writer, first, because if a hive is placed near the house, there will usually be some one, woman or child, who can note the indication of a swarm coming out without losing any precious time. The feeding in fall and spring need take but little time and cost but little money, and if properly done with a good colony, the returns should be more than thirty or forty pounds, and the honey should be worth more than eight cents a pound, whether extracted or in the comb.

There are few farming sections where there are not already large apiaries that would not support thirty or forty colonies as well as one. The experts say that there are enough nectar-bearing plants in the United States to supply the bees with ten times the material they need to make a profitable surplus of honey, either extracted or in the comb, and that this could be largely increased by the sowing of certain honey-producing plants, and also that it could be easily doubled if we can obtain a strain of bees that have but a fraction of an inch more tongue to enable them to reach the nectar in the tube of the red clover, or if we could grow a strain of red clover that will develop shorter tubes in the flowers under ordinary or good cultivation. There seems to be abundant proof that ordinary honey does reach the bottom of these tubes in white clover, crimson clover and the sweet clover, also that some are able to do so in the smaller or less developed red clover on poor locations, but this is small as compared to the larger amount in well-grown and well-nourished red clover.

Experiments made at the Colorado Station show that in natural comb honey, that is, such as is made by the bees without the use of foundation sheets or starters, there is about one pound of wax to each twenty-five pounds of honey. It is not easy to obtain reliable figures as to the amount of honey required to make that pound of wax, but we have seen it estimated at from six to twelve pounds. Then if we can furnish old and clean comb for them we add from twenty-five to fifty per cent. to the ability to produce honey. Even more than that, for when they are making wax they are not making honey. Some go so far as to claim that the honey production is doubled by the use of comb, and that they have proved it by tests of colonies side by side, one of which was given comb and the other not, but the fact is that often of two colonies standing together in the same apiary one will be productive and the other not. Yet in all cases of such tests that we have heard of, it has been the colony having comb that proved to be the most productive.

Next to the use of the empty comb, the full sheets of foundation have given the best satisfaction. The use of heavy-made foundation results in heavier comb, especially those that are so made as to have the cell walls nearly complete, but they do not yield as much extracted honey to the frame or the pound of comb as do those which are made thin, or extra thin, and even then if the cell walls are not complete, they will take wax from the midrib or base, and draw it out to build up the walls as high as they desire. With such a foundation to start upon, the honey yield is but little less than when they have empty comb given them. The use of the foundation also makes sure the building of a straight comb in the frame. The shape and size of the cell is always the same, excepting that with foundation on which the cells are all of worker size there will be less drone comb, though they will cut away worker cells to build drone cells if it is necessary, in order to have a few drones or males to perpetuate the species. The advantages of foundation are so many and so great that every beekeeper who has not empty comb should use it, and he should obtain enough of it during the winter to supply all the new colonies with it, unless there is empty comb to be used. The expense of it is small, and we think it better to use sheets of foundation to fill the frames, both in the brood hive and the sections in the super, than to use what are called starters or little strips along the edge of the frame or in the corners. The object is to save bees from the labor of converting honey into wax. We have said above that the size of the honey cell is always the same, but that is not literally true, as they vary in depth, and this will depend something upon the width of the frame, and the space allowed between them, and while some who sell comb honey crowd their sections that the cells may not be made too deep, it is very much to our mind like using bushel baskets that hold only three pecks.

There seems to be abundant evidence that the Italian bees do work more upon red clover than the black bees, and therefore that they do have longer tongues. The project of breeding long-tongued bees that can reach any or all of the nectar cells in the red clover does not seem to us impossible of success when we see what has been accomplished in the line of breeding our domestic animals; our horses for speed or

All Stuffed Up

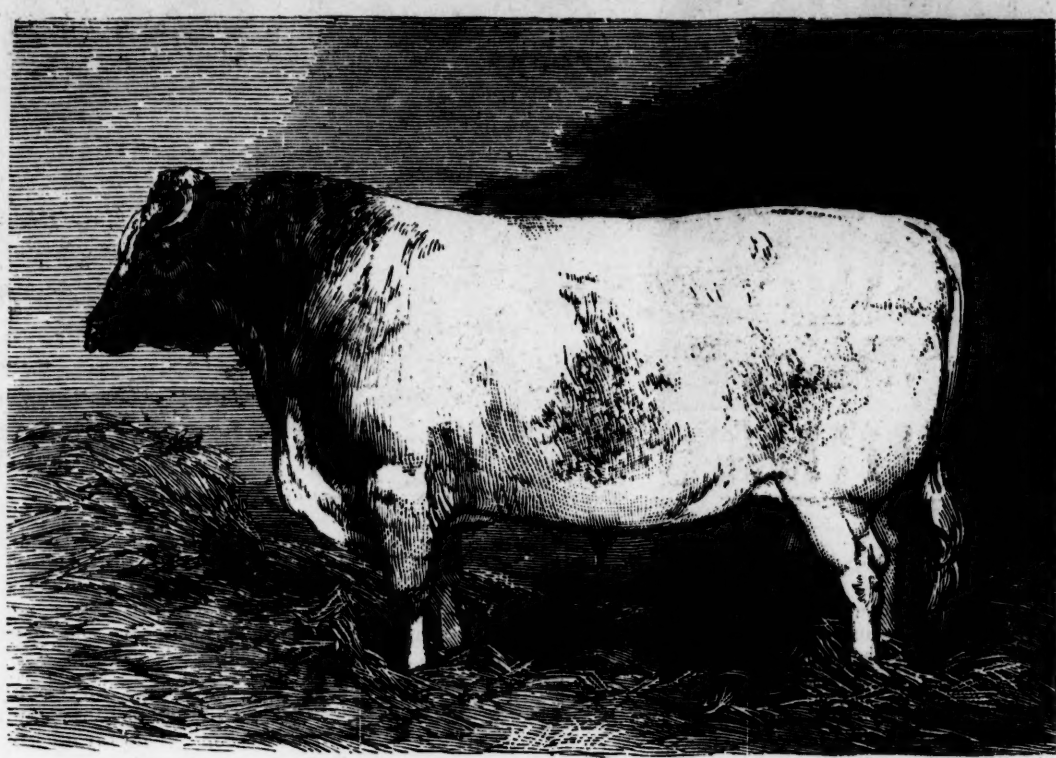
That's the condition of many sufferers from catarrh, especially in the morning. Great difficulty is experienced in clearing the head and throat.

No wonder catarrh causes headache, impairs the taste, smell and hearing, pollutes the breath, deranges the stomach and affects the appetite.

To cure catarrh, treatment must be constitutional—alterative and tonic. I was afflicted with catarrh. I took medicines of different kinds, giving each a fair trial; but gradually grew worse until I could hardly hear, taste or smell. I then concluded to try Hood's Sarsaparilla, and after taking five bottles I was cured and have not had any return of the disease since.

Hood's Sarsaparilla

Cures catarrh—it soothes and strengthens the mucous membrane and builds up the whole system.



A FAMOUS PRIZE WINNER.

draft, cows for milk, butter or beef, sheep for wool or mutton, and dogs for hunting or other purposes. It is true that in these cases we can control the mating as we cannot that of the queen bee, but when we find colonies that approach the type we want, we can see that only those colonies are allowed to produce drones and queens, cutting out the drone cells from them, and if we allow them to send out a swarm, seeing they are provided with a new queen from the most desirable stock. It may be a work of years, and queens may be, as it is said some have been, sold at \$100 to \$200 each, but men who understand just what they want and work for it usually succeed finally.

Endurance—Thoroughbred—Trotters.

It has sometimes been asserted by writers on the breeding question that trotters have as much endurance as thoroughbreds. Some have claimed that the trotter has even more endurance than the thoroughbred. They cite instances of long protracted scoring and races of many heats to prove the claim. All horsemen know the truth of the old saying, "It is the pace that kills." Endurance is a quality that enables a horse to maintain a high rate of speed over a long distance. Now according to the official records how does the trotter compare with the thoroughbred in this respect? Let us compare the time made in the long-distance races and note the result.

Take the fastest four-mile record ever made by a trotter, and see how much slower the average of each mile in that four-mile heat is than the fastest record ever made by a trotter for one mile. The fastest trotting record for one mile is 2:02, and was made by Crescens at Columbus O., the past season. The fastest trotting record ever made for four miles is 10:12, and stands to the credit of a horse named Senator L. The average time per mile in this four-mile record is 2:33. The difference in time between the fastest record for one mile, 2:02, and 2:33, which is the average time per mile of the four-mile record, is 31 seconds.

Now turning to the fastest mile heat ever run on a circular track, we find that the time is 1:37 4-5. Then turning to the fastest four-mile heat ever won we find the time to be 7:11. The average time per mile in this four-mile heat is 1:47. The difference in time between the fastest mile heat ever won and the average time per mile in the four-mile heat, 1:47, is 9 and 12-20 (nine and nineteen twentieths) seconds. It appears by this that the trotter falls behind the best mile record an average of only nine and nineteen twentieths seconds in every mile of the four-mile heat. The trotter actually falls behind a little more than three times as many seconds in every mile of the four-mile heat than does the runner. "Tis said that figures won't lie and 'facts are stubborn things.'"

It is a significant fact that the dam of the trotter which holds the world's champion four-mile record, 10:12, was Fanny, also called Fanny Baywater, a registered thoroughbred, sired by Baywater, and Baywater was a son of the old-time world's four-mile record breaker, Lexington, by Boston. The dam of Fanny was Joe Daniels, and Joe Daniels was by imported Australian; dam, Dolly Carter, by imported Glencoe; second dam, Mavis, by the old four-mile record breaker Wagner; third dam by Medoc, son of the celebrated four-mile race winner America; Eclipse fourth dam by Blackburn's Whip, and fifth dam by Sumpter, whose sire was Sir Archy, the greatest four-mile race horse of his day. The second dam of Fanny was by Starlight, and her third dam was by Illinois Medoc, he by Medoc, son of American Eclipse. It will be seen by the above that the trotter that holds the world's champion four-mile trotting record is bred very strongly in lines that come direct from several of the most noted four-mile runners of their day.

It is easy to assert that the endurance of the trotter is equal or superior to that of the thoroughbred runner. Those who make such assertions are honest and conscientious, but an examination of the facts as presented by a comparison of the long-distance records at both gaits does not warrant such a conclusion. There is a great difference, however, in the thoroughbreds as regards endurance. Some possess it in a much higher degree than others. Those who are familiar with the early history of racing stock and the creation of the breed known as thoroughbred, can readily understand why this should be so, especially if they have studied the subject of heredity as treated by the best modern authors on that subject.

There is no doubt that some trotters possess greater powers of endurance than some thoroughbreds. This is in harmony with the teachings of Weismann in his work entitled "Germ Plasm." The most distinguished trotters of the present day are very nearly thoroughbred. They originated from thoroughbred ancestors, and the pedigree of most of them show additional thoroughbred crosses, not more than four or five removes distant. According to Weismann's theory of heredity, it is not impossible that a trotter which has a thoroughbred cross even four or five removes away may have originated from biophors and determinants which have been derived solely from remote thoroughbred ancestors. Then

again, the biophor or determinant, which controls this special quality, endurance, may come from some thoroughbred ancestor, while other qualities in the same animal may be controlled by the determinants from some other ancestor. There can be no question that the speed, endurance and courage possessed by the fastest trotters, and pacers too, are all inherited from the thoroughbred. They surely could not have come from the slow cart horse.

Our esteemed correspondent, Rev. M. H. Houghton, whose interesting article on the common-sense view was published in last week's BREEDER, says he "has owned several thoroughbred horses, and he never saw one yet that had the endurance of a well-bred trotter." He has evidently been "unfortunate in his selection of thoroughbreds, for others who have tested them state that even on the plow their thoroughbreds, and animals with a close thoroughbred running cross close up, have outlasted those that were not bred in thoroughbred lines. The highly bred ones have performed more work, and with less indication of fatigue, day after day, than the colder-blooded animals.

Probably no better test of endurance can be made than with cavalry horses when in active service in the field. Any one who has had experience in this branch of the service, who has ridden in the saddle on a three weeks' raid, sometimes from three o'clock in the morning until eleven o'clock at night, without removing the saddle, not a mouthful of hay nor a feed of oats for more than two weeks, subsisting on corn stalks and corn in the ear gathered from the fields in which it grew, on rare occasions wearing the saddle for forty-eight hours—any one who has enjoyed (?) an experience of this kind knows that it was a pretty severe test of equine endurance. It was not an infrequent occurrence on such raids for a horse to lie down in the moving column from sheer exhaustion. The unlucky soldier then had to shoulder the saddle and blankets and walk until he could find a mount on some plantation.

One of the most remarkable horses that went through the war was that ridden by the Confederate general, Abe Buford. The following account of this horse was published several years ago:

The late Gen. Abe Buford, a famous turfman, served in the Confederate cavalry from Sept. 1, 1862, to June, 1865. The general, at the time he enlisted in the service, weighed 325 pounds, and for nearly three years, though he weighed less, and once he weighed 355 pounds, with his overcoat and sabre on.

What must we think, then, of the constitution and endurance of the horse that packed this man, saddle, blanket, sabre, pistol and overcoat, for nearly three years, though he weighed less, and once he weighed 355 pounds, with his overcoat and sabre on.

Only those who have seen active service in the field and in the cavalry branch of the service can fully appreciate the wonderful endurance which a horse must possess to go through a campaign of three years, carrying such a mountain of weight as is described by the above. It seems almost incredible, and yet the story bears the marks of truth. The Stratford show that Prunella produced a chestnut colt by Wagner in 1855, the year that General Buford's remarkable cavalry charger was foaled. The weight of the animal, 1200 pounds, indicates that he must have possessed wonderful substance, for his height is given as only 15.2 hands.

Prunella, the dam of this wonderful animal, was a thoroughbred daughter of imported Glencoe. Her dam was by imported Hedgeford; second dam by Bertrand, son of Sir Archy; third dam by Cherokee, another son of Sir Archy.

Old Wagner, sire of Gen. Buford's Wagner, is described by Frank Forrester as a beautiful chestnut horse, 15.2 hands high, with a blaze on his face and two white feet behind. He was got by Sir Charles, a son of Sir Archy. His dam was Maria West, and she was got by Marion, another son of Sir Archy. This shows that the horse which carried General Buford's great weight through that long campaign was inherited through both sire and dam to Sir Archy, the best son of imported Diomed.

Old Wagner was one of the greatest four-mile race horses of his day. Frank Forrester says that "he was at least the equal of any horse of his time." He was the first horse to place the four-mile record at 7:43, which he did in the race that he won from Grey Eagle, when that horse broke down. The week previous to this race Wagner won a sweepstakes for all ages, and Grey Eagle was one of the contestants. This sweepstakes race came off Monday, Sept. 30, 1859. On the following Saturday, Oct. 5, 1859, these two noted racers came together again in a race for a Jockey Club purse of \$1500. It was a hard-fought contest, but Wagner was again victorious, and Grey Eagle broke down. The following extract from Frank Forrester's matchless description of a part of his two heats will give our readers some idea of the severity of that contest:

We said they passed the stand on the second mile neck and neck. When they reached the turn Grey Eagle got in front, but no sooner had

they come into straight work on the back side than Wagner made a most determined charge and locked him; the contest was splendid, and was maintained with unflinching game and spirit. At the end of seven hundred yards, however, Grey Eagle had the best of it, for in spite of Cato's most desperate efforts, Wagner could only reach Stephen's knee. Grey Eagle seemed able, after a brush of one hundred yards, to come again with renewed vigor, if well braced, for a dozen strides.

Down the descent on the last half-mile Grey Eagle maintained his advantage, but on ascending towards the stand Wagner's strength told, and the contest through and whip and spur, Wagner having his head and neck in front, running this mile in 1:55. Stephen was here instructed to take a strong pull on his horse, and to "keep him moving," while "ram the spurs into him," were the orders to Cato. Wagner's foot, the result was that Wagner, came in front, and the pace down the entire backstretch was tremendous, both being kept up to their rate by the most terrible punishment.

Unfortunately, Stephen was directed to "take the track" about opposite the Oakland House, instead of putting the issue on a brush up the last two hundred yards of the heat. Too soon the gallant gray was called upon, but true as steel the noble animal responded to it. With the most dauntless courage he made his run down the descending ground, and though Wagner, like the bravest of the brave, as he is, made the most desperate efforts, Grey Eagle came around the last turn on the outside with his head and shoulders in front at a flight of speed we never saw equalled. Both jockeys were nearly faint with their exertions, and Stephen, poor fellow, lost his presence of mind. Up to the distance last he was impossible to say which was ahead; whips and spurs had been in constant requisition the entire mile, but at this moment Stephen gave up his pull, and unconsciously yawned his horse across the track, which broke him off his stride, while Cato, holding Wagner well together, and mercifully dodging in his spurs, at length brought him into the home stretch, having run the last mile in 1:48 and the heat in 7:45.

This was, without exception, the most game and spirited race we ever witnessed. The heat was Wagner's, and while we accorded to him all the reputation so brilliantly won after a bloody struggle, we feel sorely tempted to express the belief that, for an untired four-year-old, Grey Eagle's performance is without a parallel in the annals of the American turf. The last three miles of a second heat, in a second four-mile race the same week, were run in 5:35, and the eighth mile in 1:41.

In the next heat at the word "Go" they broke off with a racing stride, Wagner taking the lead by about two lengths. The pace was moderate for Stephen on Grey Eagle was expressly charged to pull him steady, and wait for orders. Wagner accordingly led with an easy stroke through the first mile, and being cheered as he passed the stand, he widened the gap soon after to four or five lengths. At the half-mile post Grey Eagle made play, and had nearly closed the gap as they came opposite the Oakland House, when he suddenly faltered as if shot, and after lingering a step or two, abruptly stopped. "Grey Eagle has let down," was the cry on all hands, and when the spectators became aware of the truth of the painful announcement, the fearful eyes of a radiant host of Kentucky's daughters, and the heartfelt sorrow depicted in the countenances of her sons, indicated the sincerity of the sympathy with which they regarded the untimely accident to their game and gallant champion.

Soon after Grey Eagle was stopped, Cato pulled Wagner out of his straddle and led him slowly round. The intelligence of the well-settled race was clearly indicated by Wagner's subsequent action. From the head of the stretch home he invariably went a racing pace, and appeared as if he did not know what was required of him, frequently bursting off in spite of his rider. On the fourth mile, as he passed his own stables, the rubbers and riders standing on its roof gave him a hearty cheer, and the gallant horse broke off, and in spite of Cato's desperate exertions, ran at the very top of his speed for nearly five hundred yards, as if puffed with steel and whalobone the whole way. We never saw a more magnificent exhibition of unflinching game. Even the friends of Grey Eagle forgot their distress for a moment in doing justice by a cheer to the gallant and victorious champion of Louisiana.

Grey Eagle, which contested the above race so gamely, was by Woodpecker, son of Bertrand, by Sir Archy. His dam, Ophelia, was by Wild Medley; second dam by Sir Archy; third dam by imported Diomed, the sire of Sir Archy. The account of General Buford's horse related above calls to mind a story in which an old-time Southern stage line proprietor and the race horse Wagner figured. At the time that this man controlled the stage line railroad transportation was in its infancy. There was a project to build a railroad in the territory where his stage lines were located. He was not disposed to be driven out of business, however, but conceived a scheme for checking the projectors of the railroad enterprise by equipping his stage route with horses that could outstrip the railroad locomotive in speed and endurance.

To insure success he secured the old race horse Wagner, and mated with him a lot of the best mares that he could find. The mares were undoubtedly nearly, if not fully, thoroughbred. He was disappointed in the result, for flesh and blood, propelled by nerve force, cannot beat the iron horse driven by steam. One of the animals which he raised was the famous breed mare, Lizzie Peebles, an able miler, and a descendant of Abdallah, produced Favorite (2:34), the dam of the successful trotting sires, Bourbon Wilkes, Favorite Wilkes (2:24) and Joe Downing.

Flaxey, the dam of Royal R. Sheldon (2:04) and Audubon Boy (4) (2:06), was a descendant of old Wagner's daughter, Lizzie Peebles, as Flaxey's sire was Bourbon Wilkes. The time may come when trotters may possess as great endurance as the best thoroughbreds, and transmit that quality with as great uniformity as does the thoroughbred, but this is not likely to occur

until every taint of cold blood in the trotter has been eradicated, and the best of pure thoroughbred blood substituted in its place.

Boston Retail Markets.

Beef supplies show a scarcity for the better grades of cattle, best steers costing higher at first hands. The cost of a heavy porterhouse steak is unchanged at 28 cents per pound, while 25 cents per pound is the price of a choice sirloin steak.

For a choice rump steak the cost is 30 to 35 cents per pound, while a rump tenderloin is 35 to 40 cents per pound. Round steak shows no change in cost, 23 cents per pound being the price for a top cut, with the bottom of the round 14 cents per pound, and a cut through the round at 18 cents per pound.

The cost of a beef roast is about the same, a sirloin roast ranging at 25 to 28 cents per pound, while a rib roast ranges in price from 14 to 20 cents per pound. Chuck roast is 10 to 12 cents per pound, with a rump roast at 20 to 25 cents per pound, and a face of the rump at 15 to 16 cents per pound.

A fore-shoulder roast is 12 cents per pound, with ox tails for soup at 10 to 15 cents each, and althebones costing 8 to 12 cents per pound, according to the way that they are cut. The cost of corned beef ranges from 8 to 12 cents per pound, with beef tongues 12 cents per pound for corned or fresh, with salted at 14 cents and smoked at 17 to 18 cents per pound. The cost of beef kidneys is 7 to 8 cents each, with beef suet costing 8 cents per pound.

The market is well supplied with venison, and prices are unchanged. Choice venison steaks are 40 cents per pound, with a loin of venison at 35 to 45 cents per pound, and a leg of venison 30 to 35 cents per pound. Moose steak is in good supply, the cost being 35 cents per pound, with elk steak about the same price. Fat rascosons are \$1.50 to \$2.25 each.

The cost of oyster crabs continues at \$2 per quart. Fresh perch are available at 20 cents per pound. Jack shad still on the market at 25 cents per pound, with Florida pompano 30 cents per pound. Sheephead from Florida waters are 20 cents per pound, while red snappers from the same waters cost twenty-six cents per pound.

Vegetable supplies are seasonably fair. New potatoes are coming along moderately from the South, and are 75 cents per peck, while old potatoes remain at 35 cents per peck. Jersey sweet potatoes remain at about 6 pounds for 25 cents, with Florida green peppers 75 cents to \$1 per dozen.

Green string beans from the South are scarce and cost 40 cents per quart, with Southern green peas costing \$2 per peck. Dandelions from hothouse are 75 cents per peck, while beet greens are on the market at 30 cents per peck, with spinach 40 cents per peck.

Moderate arrivals of strawberries, fresh supplies coming in from time to time. The prices are unchanged, about 60 to 75 cents per quart being the cost. The market is well supplied with oranges. For California navels the cost is about 30 to 40 cents per peck, with sweet Florida fruit at about the same price.

Tangerines and mandarins are costing about 30 to 40 cents per dozen, while grape fruit ranges in price from \$1.50 to \$3 per dozen. The cost of lemons is 20 to 25 cents per dozen, while the price of Cape cranberries is unchanged at 10 cents per quart.

Notes from Washington, D. C.

The Division of Vegetable Physiology and Pathology of the Department of Agriculture has accomplished valuable work during the past year, none less than in the study of nitrogen-producing plants.

"In the year just gone," stated Prof. Albert F. Woods, the chief of the division, "we have given special attention to the fixation of atmospheric nitrogen. By this I mean a careful study of the life history of the bacteria and micro-organisms which inhabit the root tubercles of leguminous plants—clovers, cow peas, soy beans, etc.—and also of the plants themselves, with a view of stimulating their powers to capture the free nitrogen in the air.

"Legumes, as is well known, absorb all their nitrogen from the air; providing there is sufficient potash and phosphorus in the soil; their growth then depends upon securing a large amount of nitrogen from the air. To do this, their roots should be infected with these bacteria. Some soils are deficient and the bacteria must be supplied.

"By these experiments we are finding which bacteria and micro-organisms will increase the most rapidly and effectively. We can now by means of cultures produce more in twelve hours than we could formerly in as many days.

"We will even further increase this output. Our idea, of course, is to increase the little nodules or root tubercles on all leguminous plants, and thus increase the size and health of the plant. We have two methods of doing this, one being to soak the seeds prior to planting in a liquid in which some cultures exist, while the other is to inoculate the soil with the minute bacteria. Both methods are excellent, the first, perhaps, being an easier method of distributing the germs over the land. One of our agents, however, is now making these experiments in California; in fact, we have the various experiment stations at work co-operating with us on this subject."

The committee on agriculture of the House of Representatives has agreed upon a bill in regard to the manufacture and sale of oleomargarine, which, it is stated, embraces all the best provisions of the Groul bill of last year, together with a few additions, which seem to strengthen the measure.

The bill agreed upon by the committee places a tax of ten cents a pound upon all

imitations colored to resemble butter, and a tax of only one-fourth of a cent a pound upon uncolored imitations. This is the principle championed by General Groul while he was engaged in this fight. It puts a premium on the honest marketing of butter imitations.

The committee has also inserted an amendment defining a manufacturer of oleomargarine, in which it is explained that "any person that sells, vendors or furnishes oleomargarine for the use and consumption of others, except to his own family and guests thereof, without compensation, shall add to or mix with such oleomargarine any ingredient or coloration that causes it to look like butter, shall also be held a manufacturer of oleomargarine."

The oleo advocates in presenting the side of the case have dwelt upon the wholesomeness and purity of their products, and the pure butter people have tried to explain the fact that the fight is not upon margarine as such, but against the adulteration which are committed by the producers and handlers of that commodity.

If the law is strictly enforced there will be no object for the retailer to sell the imitation product as pure butter, charging the price for it, for the tax will bring the price to approximately the average of the other prices. The sole purpose then of the law is the imitation to resemble butter, and to cater to the trade preferring the imitation to the real, but which dislikes the white appearance of the former in its proper season, and is willing to pay an extra price for the indulgence of this taste.

Secretary Wilson of the Department of Agriculture has sent a letter to the House of Representatives requesting that an emergency appropriation of \$40,000 be made once to carry forward the inspection of meat exports, which otherwise will cease on March first.

In his letter of transmittal the secretary states: "The indirect effect of its temporary interruption will be much more damaging to American interests than the mere loss of the continental export trade for a few months. It will result in breaking commercial connections and creating a bad impression in countries to which our products are sent."

The annual seed distribution of the Department of Agriculture is now going on rapidly, and the output this year will be double the amount sent out last year.

Prof. B. T. Galloway, the chief of the Bureau of Plant Industry, under whose supervision the distribution comes, in an interview stated that as this is his first year in watching this work he has found many new incidents which will regulate the distribution in years to come—if Congress so provides.

According to some figures just issued by the census office, there are in the United States 6129 establishments making the cultivation of flowers and ornamental plants their principal occupation. These houses occupied 42,647 acres, which together with the buildings thereon have a value of \$50,000,855. That these flower-growing concerns recognize the value of fertilizers may be seen by the fact that over \$300,000 is annually expended by them for this item.

These figures do not represent establishments raising flowers for sale, or those that raise them incidentally to their agricultural operations.

Dressmaking

AND

Ladies' Tailoring

Departments

Fourth Floor.

Prices Reduced

Until February 8th.

To enable us to maintain our organization during the dull season, and to clear up material on hand, we make the following especially low prices until February 8th.

We will make plain Tailor-Made Coats and Skirts from our own fine imported woollens—skirts cotton lined, coats silk lined, for

58.00

The same, silk lined throughout, for 65.00

House and Evening Gowns of Nun's Veiling, India and Foulard Silks and other fine materials, silk lined, for

75.00

Long Broadcloth Coats, silk lined, for 75.00

R. H. White Co.

Our Shirts

For 1902 Are Ready

LADIES' SHIRT AND GOLF WAISTS

Made from Madras, Imported Cheviots, French Percals, English and French Flannels, Wash Silks, Serges, Butcher Linen, Pique, Mercerized Cheviots and Duck, Silk and Linen, Batiste and Dimity.

The above are for MEN'S and WOMEN'S Wear or Sold by the Yard.

NOYES BROS.

WASHINGTON AND SUMMER STS.

BOSTON, U. S. A.

Poultry.

Poultry Experiments.

The Experiment Station Bulletin No. 79, from Orono, Me., gives a very full report of the work done there in experimenting with poultry in 1899, 1900 and 1901. The first test, reported by Prof. G. M. Gowell, who has had the work in charge, was a continuation of one previously begun, to see if chickens of one variety would fatten as well as in the other. The coops used had floor space 16x24 ft. and were made of laths, with close end partitions of boards. The floors were of little more than an inch apart, and one end of the coops was open, so that they could be cleaned by moving the coops. They were divided into two groups. The laths run lengthwise on bottom, top and back, but were open on the front and two inches apart, so that the chickens could feed from a trough in front.

They put 20 Plymouth cockerels in five coops. They were 95 days old and weighed 12.6 to 14.8 pounds each, being taken to have the birds weighed and put together nearly alike in size and weight. They were fed twice daily on corn meal made from 100 pounds each of corn meal and middlings mixed with cold water. In the coops that had the smaller birds, the birds gained 6.5 pounds, and those that had the larger birds 6.4 pounds, the others gained 6.7 pounds each. The average gain was 6.5 pounds per bird. It took 8.92 pounds of the above mixture to make a pound of gain, or the 240 pounds to make 27.5 pounds of gain. At the same time 68 chickens, males to those in the coops, were put in a small house and yard, in which there were no green plants, and fed the same as the others. They weighed 19.3 pounds when put in, and after 28 days had gained 9.7 pounds, or an average of 1.43 pounds each. It took 5.26 pounds of the mixture to make a pound of gain, or 3.66 pounds less than those in the coops.

Five other lots were put in coops at the same time, of same age, 95 days, and fed with the same grain mixture, 33 pounds of meat meal mixed with cold skim milk. They had 45 pounds of skim milk. They gained 6.57 pounds, or 1.48 pounds each. It took 5.26 pounds of the dry mixture to make a pound of gain; 68 others were put in house and yard at the same time, and fed in the same way, and they gained 1.73 pounds each. It took 4.03 pounds of the mixture to make a pound of gain.

Tests No. 6 and 7 were made with 11, with chickens 100 days old, weighing nearly five pounds each. The food mixture was the same as in the first test, excepting that five coops had their porridge made with water and the other five had their mixed with milk. The first gained 15.6 pounds, requiring 9.74 pounds of the dry mixture for each pound of gain, and those having the skim milk gained 17.5 pounds, requiring 8.28 pounds for each pound of gain. They ate 8 pounds less of the mixture and gained nearly two pounds more. The other five coops of same age were put in the small house and yard, and fed the same as the last. They gained 23.2 pounds in 21 days, requiring 7.63 pounds of mixture to each pound of gain. Results thus in each case showed best results from giving them the liberty of the small yard. The difference in gain at the ages of 95 days and 100 days was very marked, although that was not designed as a part of the test, but the older lot gained about half as fast as the younger lot. The use of skim milk was found to hasten the fattening.

On Oct. 5 ten coops of chickens were put up, and five of them fed with mixture of one hundred pounds each of corn meal and wheat middlings, fifty pounds of meat meal. The other five with the same grain ration, but no meat meal. This lasted four weeks. Those having the meat meal gained 18.03 pounds to the lot, and the gain cost 13.88 cents a pound, while those without it gained 14.3 pounds, at a cost of 14.96 cents a pound. These were birds 13 months old and weighing over five pounds each. With smaller and younger chickens they have succeeded in getting the gain at a cost of five to eight cents a pound.

In testing incubators they had two lots of eggs, one placed in closed cases in the dark, and one spread in open pans in the light, both practically at a temperature of 62°. They were laid between May 25 and June 2, and kept until June 12 before they were put in the incubator. Eighty-one eggs in closed cases hatched thirty chickens. Eleven eggs were infertile. In thirty-six the development stopped by the end of the twelfth day, and five others between twelfth and twentieth day of incubation. Seventy-nine eggs exposed to air and light hatched nineteen chickens, nine eggs being infertile. Forty-one stopped development before twelfth day and nine between twelfth and twentieth. The lack of fertility and the dying of chicks in the shell may be partly accounted for by the fact that the hens had been laying very heavily for some time before eggs were saved.

At the same time the eggs of 24 hens were saved and equally divided, by selecting alternate eggs from each hen, they being distinguished by the use of trap nests, 66 were kept at a temperature of 70° and 62 at 70° eggs in each lot proved infertile. Those kept at 70° hatched 23 chickens, 20 died in the shell in the first 12 days, and 19 others in next 8 days. Of those kept at 70°, the first 18 chickens, 18 died in the shell in the first 12 days, and 19 others in next 8 days. No great difference produced by the temperature.

The eggs from 26 White Wyandotte hens were divided into two lots as above, and sent down Orono in an ordinary shipping case to London, and returned the next day, before the road or at station 36 hours, and 200 eggs. One lot was put into the incubator as soon as they returned, and the other lot was put into the incubator 24 hours later. Of this last lot 22 eggs hatched from 45 eggs, 17 being infertile. Stopping development in first 12 days, 14 in next 8 days. Of those put in as above, 22 returned 22 chickens hatched from 45 eggs, 18 were infertile, 17 stopped in first 12 days and 20 afterward. No gain by waiting after transportation.

From Plymouth Rock hens, a year old, we had a lot of males with them since they were first selected and a yearling 26, and eggs were all incubated. Those hatched clear and three showed signs of fertility. From those laid May 27, 2 good, vigorous chickens were hatched, but the best results were obtained from those laid June 1, when 8 chickens resulted from 10 eggs, being infertile. Eggs from hens laid June 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

for two, and in some cases three years, but it is too long for our use, though we can select a few facts.

Of twenty-eight Barred Plymouth Rocks during the first full year after beginning to lay, one produced 206 eggs, another 204, and another 201, two 191 each, four from 180 to 188, four between 170 and 180, seven between 160 and 170, four between 150 and 160, and two recorded 143 and 149.

Of sixteen Light Brahmas, two made a record in their first year, from beginning to lay of 194 eggs each, one of 181, one of 161, one of 156, two of 155 each, three of 151 each, one of 149, one of 138, one of 130, one of 124 and one of only 81. Of twenty-three white Wyandottes, one reached 208 eggs in her first year, one 201 and another 200. Only one other exceeded 170, seven were from 160 to 170, four between 150 and 160, five from 140 to 150, one 115, and one 109. There were two hens in the pens apparently in good health that were not known to lay an egg during the year. Of the hens that laid 200 eggs or more during the first twelve months after commencing, one laid 140 the second year and 130 the third year. No. 14 laid 208 eggs the first year, 141 the next, and, owing to accidental injury, only 28 the third. No. 101 laid 201 eggs the first year, 30 the next and 63 the third. The records show that hens which laid from 100 to 120 eggs the first year seldom gave satisfactory results the second year, while those that gave from 130 to 200 the first year generally laid well the second year.

There is a further report of the records of eighty pullets of each breed from Nov. 1, 1899, to Nov. 1, 1900, and also of others from Nov. 1, 1900, to Nov. 1, 1901, but we must reserve that for another article.

Poultry and Game.

Poultry is dull, with a light demand, but with receipts of 4883 packages, against 8337 for same week last year; the prices are fairly steady, but it is easy to buy at quotations. Fresh-killed Northern and Eastern chickens are 16 to 20 cents for choice roasting and broilers, ordinary to good 10 to 14 cents. Fowls 12 to 13 cents for extra choice, and ordinary 10 to 11 cents. Ducks 12 to 15 cents and geese 12 to 13 cents for choice and fair to good 9 to 10 cents. Pigeons steady at \$1.15 to \$1.25 for choice and common 50 cents to \$1 a dozen. Squabs, choice large \$2.50 to \$3 a dozen and ordinary \$1.75 to \$2. Western poultry dry packed in boxes. Choice chickens 13 to 14 cents, and ordinary 10 to 12 cents. Fowl 10 to 11 cents. Choice large capons are scarce at 16 to 18 cents and small or medium dull at 13 to 15 cents. Ducks 11 to 14 cents, and geese 9 to 11 cents. Turkey steady, choice, large hens, headed, 14 1/2 to 15 cents, or with heads on 14 to 14 1/2 cents, choice turkeys at 13 to 14 cents, mixed 12 to 14 cents, old toms 10 to 11 cents, and No. 2 9 to 10 cents. In barrels, choice turkeys are 13 to 15 cents, fair to good 10 to 12 cents, chickens 9 to 11 cents and fowl 8 to 10 cents, ducks 9 to 12 cents, and old roosters 7 cents. Live poultry in small supply with fair demand, fowl at 10 to 11 1/2 cents, chickens 9 to 10 1/2 cents and old roosters 5 to 6 cents.

Game is dull. Grouse at \$1.75 to \$2 a pair, and quail steady at \$2 to \$3 a dozen, both in small supply. Some canvas-back ducks bring \$2 to \$2.50 a pair, but light weights \$1 to \$1.50. Shore ducks are coming poor, red heads 50 cents to \$1.25 a pair, black 75 to 90 cents, mallards 70 to 90 cents, teal 30 to 50 cents and small ducks 20 to 30 cents. No brant coming in. Wild geese 75 cents to \$1 each in storage. Venison scarce at 20 to 25 cents for saddles, choice cuts 25 to 35 cents a pound. Moose 12 to 15 cents for hindquarters, 30 to 40 cents for steaks and roasts. Rabbits not very plenty at 15 to 25 cents a pair and jacks 75 to 100 cents.

Start the Incubators Early.

With the incubator in hand now some good work should be planned and carried out for the spring markets. It is possible now to get supplies of spring chickens, which is the market for them, that will pay better than anything else connected with the poultry business. A good market can often be found by systematic drumming up of trade within a reasonable distance of home. Personal solicitation from hotels and boarding-houses will generally show that there is a demand for such chickens. The mistake sometimes made is for people to put on extra prices for such nearby markets, reasoning that higher prices than those in the market will be willingly paid for nearby spring chickens. That does not always hold true. It is better to go to the other extreme and cut under other market rates. Certainly there is profit in the business if you have no commissions and freights to pay, while the chickens obtained from a distance are sold after all these costs are deducted. Very often we will kill the hen that lays the golden egg in this way.

The incubators should be started early, and a good working trial of them should be made before any number of eggs are risked in them. Incubators and lamps are just as likely to get out of order as any other machine, and when they have been laid aside for months it is well to give a good test of them first. If everything works well, then let the process of hatching begin. Do not in this work put all the eggs in one basket. Remember it is easier to sell a few chickens at once than a whole bunch of them. If you hatch all of the eggs at once you find a market for the chickens at about the same time. I have always found that by distributing the work over a longer period there is sure to be a better average profit. Besides, we do not risk all then if anything should happen to the first batch. I should make at least three or four hatchings out of the season's eggs, and coming about two or three weeks apart one is not rushed with the work, so that little attention can be given to other things. The season for supplying the spring chickens to customers is thus extended, so that advantages are mutually enjoyed. It is true that the very early spring chickens are apt to bring the highest prices, but it is equally true that the demand for them is more limited, and one might find herself burdened down with more than she could possibly sell. ANNIE C. WEBSTER.

Pennsylvania. It seems strange that while so much attention has been paid to the investigation of feeding stuffs for animals, comparatively little study has been bestowed upon human foods, the foods by far the most important to mankind. It goes generally that a man can eat most anything, and he does eat almost anything and everything in these days of adulteration when he don't know what he eats. Many of those foods which are not deleteriously adulterated form such unbalanced ration as no breeder would think of feeding his stock. A study of foods for man would be one of the most useful and beneficial courses which could be indulged in.



PRIZE-WINNING HOUSTAN HEN.
Owned by C. E. Peterson.

Horticultural.

A Business in Seeds.

A paper on "The Business End of Horticulture" was recently read before the Massachusetts Horticultural Society by Patrick O'Mara of New York. He said in part: "My experience in the trade has been exclusively along the lines of commercial horticulture, so that necessarily my observations will be mainly confined to matters less or more intimately connected therewith. I have enjoyed the advantage of some experience with other branches.

"First in importance is the seedman. Even here there are to be found differences; all do not travel on the same road. There is the box trade, for instance, a separate and distinct branch. Long before a town can support a seed store the box makes its appearance. The druggist, the general storekeeper, the jeweler, the grocer, almost any shopkeeper will be the distributing agent for the seeds. The growth of this branch of the trade is something marvelous. In one generation we have seen one firm expand from a little shop which barely paid the living expenses of the founders into a great institution which ranks high among the finest commercial houses in the country.

"Many people believe that the large seed houses have one big farm where they grow all their seeds. That would be impracticable, for the reason that different seeds can be better grown in different localities. Peas and beans can be better grown in Northern than Southern localities. California can produce better seeds of many kinds than any other part of the country. Long Island seems to be the ideal place for cabbage-seed production. Portions of Connecticut are unrivalled for the quality of onion seed produced. Northern New York and Maine are unexcelled for potatoes. The great Northwest has exceptional possibilities as a seed-producing country. Europe still supplies its quota of seeds and bulbs, but with the vast extent of territory over which floats the American flag, with the wide range of temperature, the rich soil, and the energy and intelligence of the men engaged in horticulture, there is every reason to believe that in the near future we shall not only produce all we need ourselves, but we shall be able to control the markets of the world in seed production. The seed grower is for the most part a contractor who takes the stock supplied by the seedsmen and delivers the entire product. His work is supervised by the seedsmen, who inspect the growing crops and carefully remove, that is, destroy, any plants which are not up to type. It often happens that an improvement will be apparent in individual plants, and these are carefully marked, the seed product kept separate, and sown the following season. It is obvious that the greater the amount of care bestowed on inspection and the greater the intelligence brought to bear upon it, the better in proportion must be the result. It is upon this care and intelligence that that reputation is based. The seed-grower is often a hybridizer, and to the patient work of these men we owe many of the improved varieties now in existence.

"The greatest vehicle unquestionably for developing horticulture is the catalogue of the seedsmen, the nurseryman and the florist. The first is the most important in its effects and might be called the centre from which the business ends radiate. The millions of catalogues distributed annually are an inspiration to the recipients and to the hundreds of thousands who are influenced by seeing their neighbors engaged in horticultural work. Great is the responsibility of the catalogue firms and great is the labor involved. It is undeniably the most trying of all the business ends of horticulture. The men engaged in it must be ever on the watch for new and improved varieties; they must lead and not follow public opinion; yet they must be cautious not to get too far in advance. They must be ready to explain why crops fail; they must be able to advise crop failures; they must be entomologists, pathologists, must be up in soil chemistry, and when the great extent of the country is considered, it is readily understood that the task is not an easy one. They must be ready to tell when and what to plant or sow in farm or garden, from Puget Sound to Florida Keys, from Arcos-took to San Diego. They must be prepared to have their honesty impugned whenever a clerk makes a mistake, or the very early spring chickens are apt to bring the highest prices, but it is equally true that the demand for them is more limited, and one might find herself burdened down with more than she could possibly sell. ANNIE C. WEBSTER.

generally followed by men who have some land but little working capital, and the profits, as a rule, are very meagre. Because of the limited capital with which it can be entered, provided the land is already secured, a great many of the smaller nurserymen, florists, and even farmers, have entered it of late years, and it may be safely said to be a well-plowed field at the present time. Because these men are not in touch with the retail market they grow many things for which there is not ready sale; failing to obtain buyers for these at remunerative prices they are frequently taken up at a sacrifice and pushed by catalogue men to the detriment of better things. I think it may be accepted as an axiom that the successful catalogue business man must be a bona fide producer, either under his own direct control or by the contract system.

This applies to plants more than to seeds or bulbs, which can be treated as merchandise. The expense of catalogues, advertising, packing and growing hardly admits of developing a large business by buying plants and selling again.

"The business end of horticulture represented by the cut-flower grower, is, perhaps, the simplest in a business sense of any, in that the skill of the grower is the paramount issue. His product is sold for what it is worth on sight. Although the market takes exasperating turn, he has little, if anything, to do with it. He is saved the nerve wear incident to bargaining, planning how to get rid of his product, how to get his money after he has sold it, and the many vexatious problems incident to barter and sale. I speak of the grower who supplies the large cities and consigns to a commission firm. Business instinct counts just as heavily in growing cut flowers as in the other business ends of horticulture. It was business instinct which years ago influenced one of our leading growers of roses to discard every flower which did not come up to his standard. This policy made his reputation, and was the foundation of his success. It worked both ways, it concentrated his efforts in producing something up to that standard and maintaining it, while it made his reputation. It did more, it elevated the standard and really made two classes of growers in all lines of cut-flower growing, the one which aims at 'fancy' flowers and which embraces all the high-class establishments; the other which does the best it can and takes things as they come. Cut-flower growing is one of the most pleasant branches of horticulture and one of the most remunerative for the capital invested. It has developed the fastest of all during recent years, and although the constant cry goes up that it does not pay, it continues to develop. The demand for flowers is constantly growing, and the laws of demand and supply are inexorable.

"The business end of horticulture represented by the shopkeeper in the large cities is a distinct branch. Its connection with the producing branches is a very slender one and seems to grow more attenuated. Why this should be does not appear on the surface to most of us. The fact remains, however, that as a class they hold aloof from trade organizations when it would seem that their interests would be conserved by affiliating with them. The combination of all branches of trade horticulturists in one organization should inure to the benefit of all.

"In horticulture, as in everything else, the men who originate either methods or varieties are the men who shape the business, ends and all. The men who hybridize, the men who investigate, the men who do the thinking, are the men who supply the motive power for the whole. The originators of the new varieties of fruits, flowers and vegetables have not only conferred a benefit to the public at large, but have made it possible for the grower to continue in a profitable business. The men who first propagated roses in summer and began a special business of mailing them, showed the way to dozens of successful imitators. The man who developed the idea of the shallow bench and annual planting of roses for cut flowers was in his way a Columbus. The man who first used large glass and light frames in greenhouses made it possible to produce the quality of flowers in evidence today. The men who built big greenhouses to grow lettuce, tomatoes, cucumbers, etc., made a great forward stride. The men who started the first trade journal made an important innovation. The business ends of horticulture are many and various, and I trust enough has been said about them in this paper to show to those who may not have considered the matters covered that they are interesting and important, at least to those engaged in them."

The Spring Campaign.

It will soon be time for our farmers to commence making their plans for the coming spring. It will be well to look over the fields to be tilled, and to make up their minds where to put the various crops to be raised the coming season. Much may be gained in forming these plans right. It will be of no use to devote soil to the growth of crops not suitably adapted; for it will be found that no profit can follow such a course. Therefore it would be well to make the best plans possible in this direction if we hope for success or profit. Do not plant corn or potatoes on a stiff

clay soil and expect paying crops. Better devote it to some other crops if you have such soil to deal with. If the farmer has owned his farm for a series of years, he ought to have a thorough plan so well marked out that he might be able to tell just where certain crops can be raised at a profit.

We believe that one-half the failures in farming come in the way of trying to raise crops that are not adapted to the soil that is to be treated. Let the farmer the coming spring think this matter over thoroughly in his own mind before the crops are put in. If you have a stiff, clayey soil to handle, devote it chiefly to the hay crop. Do not try an apple orchard on it, for you may look for a failure with a reasonable assurance.

It will be found at this season of the year that it is well to look over the farming tools and see what is needed for new tools, and what repairs we need upon the old ones to make them all right for service. Look over the seeds and see what will be needed; do not use poor seeds, just because we may have them on hand. We cannot expect the best crops where poor seeds are used, it will pay you to have the best.

If you have fertilizers to get, better procure what you need, and get them home before the bad traveling comes on. By looking out at this time we may save much time, and time is what we need in the season of putting in our farm crops. Here in Maine we need all the time we have to put in our crops, as our season is short at best.

